

REMARKS

By this amendment, Applicants have amended the claim 1 to include that the catalyst has a first portion of the support material and a second portion of the support portion as described in paragraphs 5, 26, 28 and Table 3 of the published application US 2009/0062117 and as indicated support for in the Office Action at page 3. Applicants have also amended claims 5, 8, 9, 10 and 16 to make them consistent with claim 1. These amendments do not add new matter. Applicants respectfully request entry of these amendments and allowance of the pending claims.

1. Substance of Interview

Applicants conducted a telephone interview with Examiner Berns on January 20, 2011. Applicants thank the Examiner for the time generously extended during the interview. Applicants discussed the rejection and ways to overcome the 35 USC §112 rejection by amending the claims to recite first portion of the support material and second portion of the support material. Applicants also discussed the unexpected results shown by catalysts C1, C3, and C5 having a first support material and a second support material in Table 3 of the application. Further, the first support material contains the noble metal, while the second support material contains the nitrogen oxide storage component, but does not contain the noble metal. The claimed catalyst had unexpected efficiency and thermal stability (see declarations previously submitted of Dr. Wittrock and Dr. Gobel at paragraphs 9 and 10). Applicants also discussed the difference in the art between “nitrogen oxide storage material” and “nitrogen oxide storage component” as mentioned in item 13 of Dr. Wittrock’s declaration. Ruwisch lists homogeneous Mg/Al oxide as a support material for the oxidation component containing Pt, but Ruwisch does not suggest using Mg/Al oxide as a second portion of the support material for the nitrogen oxide storage component. Ruwisch suggest in paragraph 43 to use the Mg/Al mixed oxide “in combination” with the nitrogen oxide storage material of the catalyst”. The term “nitrogen oxide storage material” has to be distinguished from the term “nitrogen oxide storage component”. Ruwisch gives a definition of both in [0036]. From that

definition it is clear, that the nitrogen oxide storage component (e.g. BaO) is supported on a suitable support material in a highly dispersed form. This is in contrast to the current invention where the nitrogen oxide storage component is disposed on the homogenous Mg/Al support material. The Examiner mentioned that he would consider this argument, but an agreement was not reached.

2. Rejections Under 35 U.S.C. §112 Second Paragraph

Claims 8-10 are rejected under 35 U.S.C. 112, second paragraph, as allegedly being indefinite because they recite a precious metal on the second support material. By this amendment, Applicants have amended claim 8 according to the Examiner's suggestions so the precious metal is on the first portion of the support material and claims 9 and 10 to recite that the precious metal is on a third portion of the support material. Therefore, these rejections are now moot.

3. Rejections Under 35 U.S.C. §112 First Paragraph

Claims 1-5, 8-10, 13, 15 and 16 are rejected under 35 U.S.C. 112, first paragraph, as allegedly failing to comply with the written description requirement for reciting first support material separate from second support material. The Examiner alleges that paragraph 28 supports that they are on different *portions* of the support material. By this amendment, Applicants have amended the claims to include that the precious metal is on a first portion of the support material, but not on the second portion of the support material as described in paragraphs 5, 26, 28 and Table 3 of the published application US 2009/0062117 and as indicated support for in the Office Action at page 3. Therefore, these rejections are now moot.

4. Rejections Under 35 U.S.C. §103(a)

Claims 1-5, 8-10, 13, 15 and 16 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over US 2003/0125202 (Ruwisch) in combination with US 6,350,421

(Strehlau) or U.S. Patent No. 5,874,057 (Deeba). Applicants respectfully traverse these rejections.

The Applicants respectfully submit that the cited prior art does not render the present claims obvious, as one of ordinary skill in the art would not combine the references in the manner that the Examiner applies them and the combination fails to make obvious every element as required.

Applicants have previously submitted the declarations of Dr. Ulrich Göbel and Dr. Meike Wittrock describing the catalysts in Table 3 of the current application and the unexpected thermal durability results in Figure 3 of the claimed catalyst C1 (containing first portion and second portion of the support material containing homogeneous Mg/Al oxide, where the first portion of the support material contains the noble metal and the second portion of the support material does not contain the noble metal) when it was compared to a comparative catalyst CC1 that had a first portion of support material containing homogeneous Mg/Al oxide, but did not have the nitrogen oxide storage material containing BaO supported on a second portion of the support material of homogeneous Mg/Al oxide (see previously submitted declarations of Dr. Wittrock and Dr. Gobel at paragraphs 9 and 10).

The inventors also compared the claimed catalysts C3 and C5 (first and second support material containing homogeneous Mg/Al oxide, where the first portion of the support material contains the noble metal and the second portion of the support material does not contain the noble metal) to a comparative catalyst CC4 that had a first portion of the support material containing homogeneous Mg/Al oxide. In CC4 the nitrogen oxide storage component containing BaO was supported on Ce-Zr oxide as the second portion of the support material. The results were shown graphically in Figure 5. The claimed C3 and C5 catalysts unexpectedly had improved thermal durability and NO_x storage efficiency compared to the catalyst CC4 that does not have a second portion of the support material containing homogeneous Mg/Al oxide (see previously submitted declarations of Dr. Wittrock and Dr. Gobel at paragraphs 11 and 12). These comparisons describe surprising advantages of the inventive catalysts when compared to prior art catalysts wherein the nitrogen oxide storage component is not supported by homogeneous

Mg/Al oxide. Applicants believe they have overcome the *prima facie* case of obviousness and the rejections are improper.

With regard to Ruwisch, the Examiner's opinion is that Applicants have just recognized another advantage which would flow naturally from the suggestion of the prior art. Applicants respectfully disagree. Ruwisch at paragraph 38, which the Examiner relies on, teaches that magnesium oxide as storage material for nitrogen oxides when supported on aluminium oxide shows unsatisfactory storage capacity. This can be improved if the material is combined with other storage materials, for example barium oxide. Accordingly, Ruwisch teaches a mixture of magnesium oxide and barium oxide as storage materials supported on aluminium oxide. Note, however, that Ruwisch does not teach or suggest using barium oxide as storage material on *homogeneous Mg/Al oxide* as supporting material as currently claimed. In other words, Ruwisch's adding of barium oxide to a mixture of magnesium oxide and aluminium oxide does not result in barium oxide supported on a *homogeneous Mg/Al oxide* as currently claimed.

Moreover, Applicants submit that there is a recognized difference in the art between "nitrogen oxide storage material" and "nitrogen oxide storage component" as mentioned in item 13 of the previously submitted declaration of Dr. Wittrock. Ruwisch lists homogeneous Mg/Al oxide as a support material for the oxidation component containing Pt, but Ruwisch does not suggest using Mg/Al oxide as a second portion of the support material for the nitrogen oxide storage component. Ruwisch suggests in paragraph 43 to use the Mg/Al mixed oxide "in combination" with the nitrogen oxide storage material of the catalyst". The term "nitrogen oxide storage material" has to be distinguished from the term "nitrogen oxide storage component". Ruwisch gives a definition of both in [0036]. From that definition it is clear, that the nitrogen oxide storage component (e.g. BaO) is supported on a suitable support material in a highly dispersed form. This is in contrast to the current claims where the nitrogen oxide storage component is disposed on the homogenous Mg/Al support material.

According to Ruwisch the noble metal is supported by the homogeneous Mg/Al mixed oxide but part of it can be applied onto the nitrogen storage material (see [0044]), the nitrogen storage material being the nitrogen storage component on a support.

Ruwisch lists several materials which can be used as support material [0048] but all catalysts specifically disclosed contain BaO as nitrogen storage component supported by Ce/Zr oxide. Accordingly, part of the noble metal is also supported by Ce/Zr oxide.

In contrast to Ruwisch, according to the present invention both, noble metal and nitrogen storage component are supported by homogeneous Mg/Al mixed oxide, however on different portions of it. In addition, the portion carrying the nitrogen storage component does not carry any noble metal. Accordingly, Ruwisch does not make the current claims obvious.

Further, Ruwisch does not make obvious the unexpected thermal durability that the inventors have discovered when they used the oxidation-active component (e.g., Pt) on a first portion of the support material of homogeneous Mg/Al oxide and used the NO_x storage component (e.g., BaO) on a second portion of the support material also containing homogeneous Mg/Al oxide but not the noble metal.

Like Ruwisch, Strehlau does not make the current claims obvious. Strehlau does not describe the unexpected thermal durability that the inventors discovered when they used the oxidation-active component on a first portion of the support material of homogeneous Mg/Al oxide and used the NO_x storage component on a second portion of the support material also containing homogeneous Mg/Al oxide, but no noble metal. Therefore, Strehlau does not make the claims obvious. (See previously submitted declarations of Dr. Wittrock and Dr. Gobel at paragraph 16.)

Like Ruwisch and Strehlau, Deeba does not make the current claims obvious. Deeba teaches a NO_x abatement composition comprising a NO_x abatement catalyst and a NO_x sorbent material which are dispersed in proximity to, but segregated from, each other on a common refractory carrier member. However, Deeba does not describe the unexpected thermal durability that the inventors discovered when they used the oxidation-active component on a first portion of the support material of homogeneous Mg/Al oxide and used the NO_x storage component on a second portion of the support material also containing homogeneous Mg/Al oxide, but no noble metal. Therefore, Deeba does not make the claims obvious.

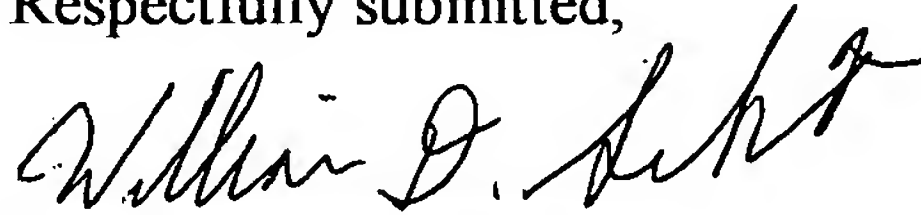
Applicants respectfully submit that one would not combine Ruwisch, Strehlau and Deeba together the way the Examiner does. Even if one were to combine the references together, Ruwisch, Strehlau and Deeba do not make obvious the unexpected thermal durability that the inventors discovered when they used the oxidation-active component on a first portion of the support material of homogeneous Mg/Al oxide and used the NO_x storage component on a second portion of the support material also containing homogeneous Mg/Al oxide, but no noble metal. Accordingly, Ruwisch, Strehlau and Deeba, alone or in combination do not make the currently pending claims obvious and Applicants respectfully request withdrawal of these rejections.

5. Conclusion

Reconsideration and allowance are respectfully requested. Applicants also concurrently file a Request for a Continued Examination (RCE) and authorizes the Patent Office to charge the requisite fee amounts to Kalow & Springut's credit card.

If any further fees are deemed due, or an overpayment has been made, please charge, or credit, Deposit Account No. 11-0171 for such sum. If the Examiner has any questions regarding the present application, the Examiner is cordially invited to contact Applicant's attorney at the telephone number provided below.

Respectfully submitted,



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